

**Claims:**

1. A cellulose fiber product resistant to biological degradation which comprises cellulose fibers derived from wood, the fibers initially being at least partially purified by a chemical pulping process, the product containing a biocidally effective amount of a compound selected from the group consisting of didecyldimethylammonium chloride, didecyldimethylammonium bromide, and mixtures thereof, the fiber product being resistant to fiber length degradation during refining.  
5
2. The cellulose fiber product of claim 1 in which the fiber product also contains 0.01-0.25% by weight of dry fiber of a water soluble copper salt.  
10
3. The cellulose fiber product of claim 1 in which the didecyldimethylammonium chloride, didecyldimethylammonium bromide, or mixture thereof is present in the fiber product in an amount of 0.1-2.0% by weight of dry fiber.  
15
4. The cellulose fiber product of claims 1 or 2 in which the biocidal compound is didecyldimethylammonium chloride.
5. The cellulose fiber product of claims 1 or 2 in which the biocidal compound is didecyldimethylammonium bromide.  
20
6. The cellulose fiber product of claims 1 or 2 in which the cellulose fiber is selected from the group consisting of bleached and unbleached kraft pulps, bleached and unbleached sulfite pulps, bleached and unbleached semichemical pulps, and bleached and unbleached chemithermomechanical pulps.  
25
7. The cellulose fiber product of claim 6 in which the cellulose fiber is an unbleached kraft fiber.
- 30 8. A method for producing a cellulose fiber product resistant to biological degradation which comprises:  
providing a cellulose fiber derived from wood that has been at least partially purified by a chemical pulping process;  
treating the fiber so that it contains a biocidally effective amount of a  
35 biocidal composition selected from the group consisting of didecyldimethylammonium chloride, didecyldimethylammonium bromide and mixtures thereof; and

drying the treated fiber.

9. The method of claim 8 in which the fiber is also treated to contain 0.01-0.25% of a water soluble copper salt.

5

10. The method of claim 8 in which the didecyldimethylammonium chloride, didecyldimethylammonium bromide, or mixture thereof is present in the fiber in an amount of 0.1-2.0% by weight of dry fiber

10

11. The method of claims 8 or 9 in which the biocidal composition is didecyldimethylammonium chloride.

12. The method of claims 8 or 9 in which the biocidal composition is didecyldimethylammonium bromide.

15

13. The method of claims 8 or 9 in which the cellulose fiber is an unbleached kraft fiber.

20

14. A cellulose fiber product resistant to biological degradation which comprises cellulose fibers derived from wood, the fibers initially being at least partially purified by a chemical pulping process and containing 0.01-0.25% by weight of dry fiber of a biocidally effective water soluble copper salt, the fiber product being resistant to fiber length degradation during refining.

25

15. The cellulose fiber product of claim 14 which further includes in combination with the copper salt a biocidally effective amount of a compound selected from the group consisting of didecyldimethylammonium chloride, didecyldimethylammonium bromide, and mixtures thereof.

30

16. The cellulose fiber product of claim 15 in which the didecyldimethylammonium chloride, didecyldimethylammonium bromide, or mixture thereof is present in an amount of 0.1-2.0% by weight of dry fiber.

35

17. The cellulose product of claims 14 or 15 in which the cellulose fiber is an unbleached kraft fiber.

18. A method for producing a cellulose fiber product resistant to biological degradation which comprises:

providing a wood derived cellulose fiber that has been at least partially purified by a chemical pulping process

5       treating the fiber with a biocidally effective amount of a water soluble copper salt to obtain a copper content in the fiber in the range from 0.01-0.25% by weight of the fiber; and

          drying the fiber.

10

19. The method of claim 18 which further includes in combination with the copper salt a biocidally effective amount of a compound selected from the group consisting of didecyldimethylammonium chloride, didecyldimethylammonium bromide, and mixtures thereof.

15

20. The method of claim 19 in which the didecyldimethylammonium chloride, didecyldimethylammonium bromide, or mixtures thereof is present in an amount of 0.1-2.0% by weight of the dry fiber.

20

21. The method of claim 16 in which the cellulose fiber is an unbleached kraft fiber.